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USSR Report

HUMAN RESOURCES

No. 8



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LABOR

STRENGTHENING LABOR DISCIPLINE LINKED TO ECONOMIC GROWTH

Moscow PLANOVOYE KHOZYAYSTVO in Russian No 4, Apr 80 pp 25-31

[Article by N. Rogovskiy, director of a division of the USSR Gosplan:
"The Strengthening of Labor Discipline as a Condition for the Growth of
Labor Productivity"]

[Text] The Communist Party of the Soviet Union has always given a great deal of attention to the strengthening of labor discipline, following the instruction of V. I. Lenin on the fact that the strictest organization and discipline of labor is the most important condition for the building of socialism. In 1918, V. I. Lenin wrote, "It is necessary to learn to unite the stormy, rallying democratism of the laboring masses, gushing out like a spring flood overflowing its banks, with /iron/ [italics] discipline during labor..." At the same time, he drew our attention to the fact that "to build a new labor discipline, to build new forms of social relations between people, and to build new forms and devices for attracting people to labor requires the work of many years and decades."

Educating people for a communist attitude toward labor is a complex and lengthy process. At the contemporary stage, the Leninist positions on socialist labor discipline have been developed and particularized in Party and government documents.

In December, 1979, the Central Committee of the CPSU, the USSR Council of Ministers and the All-Union Trade-Union Council adopted the decree, "On the Further Strengthening of Labor Discipline and the Reduction of Personnel Turnover in the National Economy," which is directed at putting into practice the economic and social policies of the Party and at the realization of the highest aim of public production, the most complete satisfaction of the growing material and spiritual demands of people.

It was noted in the decree that, as a result of the selfless labor of the Soviet people in the fulfillment of the decisions of the 25th Congress of the CPSU, qualitative changes in production are taking place; favorable

conditions are being created for the uncovering of abilities, for the manifestation of initiatives and creations and for the growth of the professional skills of workers, engineering and technical personnel and office employees. However, currently, a higher demand is presenting itself for the utilization of labor resources and for the observation of the rules of labor regulations. The loss of only one minute for each worker corresponds to the drawing into the national economy of an additional 250,000 people. Losses of working time reach 20 percent and more at certain enterprises. Also, personnel turnover is substantial, bringing very tangible losses to the economic system.

The cause of such negative factors, it is noted in the decree of the Central Committee of the CPSU, the USSR Council of Ministers, and the All-Union Central Trade-Union Council, consists in the fact that certain organs of economic administration; managers of associations and enterprises; Party, trade-union and Komsomol organizations; and soviets of people's deputies do not give the proper attention to strengthening labor discipline, improving labor conditions, and maintaining a high level of work rhythm organization at enterprises. Inspections of the USSR State Committee on Labor and its outlying organs, in particular, bear witness to this.

For example, the Sverdlovsk associations, Uralmash [Ural Heavy Machinery Plant] and Uralslektrotiyazhmash [expansion unknown], differ little from each other in their conditions of production, labor and salary levels, but personnel turnover at the latter exceeds 20 percent. The fact is that a series of measures are being developed and implemented at Uralmash directed toward reducing turnover. Every year, a work plan is approved with personnel in which are set forth the creation of favorable conditions of labor, life and rest for people; methods for the strengthening of labor discipline and the struggle against those who disturb the social order; directions for educational work; the development of tutor programs; the raising of worker skills; and other measures. The broad dissemination of the brigade form of labor organization is playing a large role in this. It includes more than 52 percent of the labor force.

In the production associations of the Ministry of the Electric Equipment Industry, Zaporozhtransformator and Transformer (Zaporozh'ye), the turnover of workers comes to 5.5 and 20.0 percent respectively. But, in the Zaporozhtransformator association labor conditions are constantly being improved; mechanization is being introduced; hand labor is being reduced; and more and more women are being freed from heavy and harmful operations. Educational work is well established; tutorial programs and socialist competition are being developed; and great concern is being shown for the personal needs of personnel. All this contributes to the consolidation of personnel and, consequently, to the reduction of turnover.

A complete system has been in operation since 1972 at the Dneprovskiy Machine Construction Plant for the consolidation of personnel, a system which includes the professional orientation of young people in supported schools as well as of graduates of trade schools (who are working on apprenticeships at an enterprise with the participation of a tutor), occupational selection by recruiting appropriate specialists, and measures for the adaptation of young workers to production. The introduction of this system, together with the solution of other questions for the stabilization of personnel, has permitted a reduction of turnover to 5.6 percent for 1970-1978. And the reduction of turnover for young workers has been reduced to 3.8 percent. The experience of this plant deserves great attention.

Large losses of labor are brought about because local organs do not soundly attract workers and employees of enterprises and institutions to agricultural, construction and other work not connected with basic production. Moreover, many public organizations conduct meetings, conferences, seminars and other activities during working hours. Most often, losses of working time arise due to deficiencies in material and technical supplies, the inconvenience of the hours of operation of enterprises and institutions which serve the population, etc.

A series of effective measures have been set forth in the adopted decree for the strengthening of labor discipline -- organizational, educational, economic, etc. USSR ministries and departments; councils of ministers of union republics and ispolkoms of soviets of people's deputies; and corresponding Party, Komsomol and trade-union organizations have been charged with completely deciding questions relating to the strengthening of labor discipline and the effective utilization of working time, with establishing a control mechanism for the realization of measures directed toward the raising of labor discipline as well as of plans for social development and the improvement of conditions of labor and daily life, and with generalizing and widely spreading the experience of collectives which have achieved successes in the utilization of working time, in the strengthening of labor discipline, and in the reduction of turnover.

A good deal of attention is given in the decree to the question of the necessity of a successive transfer to collective forms of organization and wages and to the correct distribution of collective earnings and incentive funds. It is a new principle that evaluations of the activity of shop chiefs, foremen, and brigade leaders will be based on the condition of labor discipline and its strengthening.

Public organizations are required to intensify training in the conscientious, concerned, and honest attitude toward work, to strengthen the formation of stable labor collectives, to decisively eradicate instances of conciliatory attitudes toward violations of labor regulations, and to broadly elucidate the significance of discipline as a most important condition for the successful fulfillment of plans for economic and social development.

Serious tasks have been placed before ispolkoms of soviets of people's deputies, which are responsible for the labor organization and utilization of the young people who graduate from general-education schools on the job. In every possible way, they must strengthen the link of the school with production, organize the professional orientation of the students, and develop and improve the work of organs responsible for the labor organization of the population.

Labor turnover and weak labor discipline are partially the result of deficiencies in wages. In this connection, the USSR State Committee on Labor has been charged with developing measures to increase the role of wages and to improve labor norms.

As is well known, labor turnover and incomplete work forces in enterprises are often consequences of incomplete construction. Therefore, union republic councils of ministers and local Soviet organs are charged with guaranteeing the simultaneous construction of production, service, social and cultural facilities, including living quarters.

In presenting awards for distinguished labor achievements, it has been recognized as advisable to take into account the long-standing irreproachable work of workers, employees and kolkhoz workers at a single enterprise, in an institution and in a kolkhoz. With the aim of strengthening discipline for certain categories of workers and employees, additional vacations (up to three days) are being introduced, and increases from 10 to 20 percent are being added to the pensions of retiring workers and employees for uninterrupted work records.

Important additions apply to the cancellation of a labor contract: workers and employees must give the administration, not two week's, but a month's notice; and an uninterrupted labor service status is not retained for those who cancel their labor contract a second time in the course of a calendar year on their own volition without a valid reason. These and other measures, without doubt, will contribute to the strengthening of labor discipline at enterprises and in institutions and will raise the efficiency of public production and the rate of the growth of labor productivity.

I would like to dwell particularly on the last questions.

High turnover is observable among those involved in unmechanized work. Young people who are coming into enterprises have, as a rule, a secondary education. They are not attracted to heavy and relatively unproductive labor which does not correspond to their increased level of training. The growth of the population of the working age will decrease slightly in the middle of the 11th Five-Year Plan. Therefore, enterprises which have not shown concern over sharply reducing hand labor and replacing antiquated equipment will find themselves in an extremely difficult situation. It is still comparatively easy to find personnel for enterprises of electronic, radio engineering, instrument making and other

progressive branches of industry and already very difficult to find workers for casting and other productions where technical equipment lags behind contemporary demands.

In this connection, there is particular significance in the introduction into the national economy of the achievements of science and technology as well as mechanization and other measures directed toward reducing hand labor and raising the productivity of public labor.

From 1976 to 1979, labor productivity grew more than 14 percent in industry, 10 percent in construction and 18 percent in agriculture. This accounted for three-fourths of the growth in industrial production, approximately nine-tenths of the growth in construction and installation work and virtually all the growth in agricultural production. As a result, the relative savings of living labor came to approximately 5 million people in industry, about 1 million in construction and approximately 2 million people in agriculture. The introduction of new equipment into the economy was primarily responsible for this.

In the USSR in just 1976-1978, 11,137 new types of machines, equipment and apparatus, 2,778 instruments, automation devices and computer equipment were created by scientific workers, designers, technologists and other members of the technical intelligentsia. Production has been mastered and the series output has begun of 81,000 new machines, equipment, apparatus and instruments.

The introduction of new technology and the increase in production of new progressive equipment has permitted industrial enterprises in the first two years of the 10th Five-Year Plan to increase the number of mechanized flow lines to 125,800 as opposed to 114,100 in 1975 and to bring the number of automatic lines to 20,500 as opposed to 17,000. By the end of 1978, the number of mechanized flow and automatic lines came to more than 155,000, and there were approximately 55,000 programmable units of equipment.

With each year in the country the number of complex mechanized and automatic sections, shops, productions and enterprises grows. While in 1971 there were 4,984 such enterprises, in 1977 there were 5,942, and the number of complex mechanized and automatic sections, shops and productions at the end of 1978 came to approximately 80,000, as opposed to 44,200 in 1971.

Enormous changes have taken place in agriculture. In 1978, there were 2.525 million tractors, 700,000 grain harvesting combines, 1.522 million trucks, 1.079 million tractor plows, 1.327 million tractor seeders with a large fleet of other soil cultivating and harvesting machines. This permitted the mechanization of basic field work (plowing, sowing of grain, cotton and sugar beets, and the harvesting of grain and silage crops). The high level of mechanization and other mass work is as

follows: the planting of vegetables, 94 percent; the stacking of hay, 78; the stacking of straw, 93; the shocking of hay, 87; the digging of potatoes, 92; the harvesting of sugar beets with combines, 83 percent; etc.

A high level of mechanization of labor has been achieved in animal husbandry, and, while only recently almost all the work was done by hand, it is now mechanized to a large extent: cow milking, 88 percent; supplying water on farms and in complexes, approximately 90 percent; distribution of feed, almost 80; the cleaning of facilities of manure, 70-80 percent, etc.

Highly productive machines and mechanisms have significantly raised the efficiency of the labor of construction workers. In 1978, the country's construction projects had 156,900 excavators, 43,300 scrapers, 161,200 bulldozers, 196,600 movable cranes and a great number of other machines and mechanisms which have led to the mechanization of up to 99.5 percent of earth work; more than 98 percent of the loading and unloading of rock, sand, gravel, crushed rock, slag, wood, metal, concrete and reinforced concrete structures; 90.1 percent of the loading and unloading of cement; 74.7 percent of plaster work; and 78.4 percent of painting work. In this connection, complex mechanization makes up 98 percent of earth work, 97.1 percent of the installation of concrete and reinforced concrete structures, 87.6 percent of the preparation of concrete, and 74.4 percent of the preparation of mortar.

At the same time, the proportion of work which is carried out by hand is being reduced slowly. Moreover, for a number of professions, the number of workers who do hand labor continues to increase, particularly in loading and unloading and in materials handling operations.

To speed up the process of mechanization and automation in production, it is, first of all, necessary to develop and to guarantee the unconditional carrying out of special programs for increasing the production of materials handling and warehouse equipment, putting into operation the capacities for production of automatic programmable keyboards, and for developing machine construction.

But neither the simple quantitative increase in the production of machines and equipment nor the automation and mechanization of separate sections of production can give a high effect in the growth of labor productivity, in the strengthening of labor discipline and especially in the reduction of labor turnover. What is needed is complete mechanization and automation. (It happens that the basic technological process may be mechanized and even automated, but auxiliary, preparatory and final operations are carried out by hand due to the absence of appropriate machines and mechanisms.)

The personal material concern of workers and employees for the results of their labor has important significance for the strengthening of labor discipline. In the 10th Five-Year Plan, as in previous periods, the growth of the income of the population was based on wages subject to final results, the raising of the efficiency of production and the growth of labor productivity. In 1979, the average monthly salary of workers and employees working in the national economy came to 164 rubles. This is a 12.4 percent growth since 1975, or approximately the proportion set forth in the five-year plan for this period. It increased, in large part, as a result of the growth of labor productivity and the level of skills. At the same time, the rates and salaries of workers of non-production industries increased over these years in accordance with the program of social development approved by the 25th Congress of the CPSU. Length of service bonuses were introduced for workers and employees serving in a number of branches of machine construction, in construction, in railway transport, and for separate categories of workers in the coal, mining and metallurgical industries, civil aviation, as well as for workers of sovkhozes in the non-chernozem zone of the RSFSR. Rayon coefficients for wages of workers and employees have been established or raised in several rayons of the country.

Also, other measures have been implemented directed toward the solution of an important social problem, poor material conditions, and toward the restoration of optimal correlations in the wages of workers based on their skills, as well as on the difficulty and complexity of their work. Deficiencies in this area have had a negative effect on the rate of the growth of labor productivity, have contributed to labor turnover and other breaches of labor discipline, have given rise to unfavorable criticism by workers and employees, and, in the final analysis, have caused the normal process of labor to deteriorate.

According to a preliminary evaluation, the five-year plan for the level and growth of the average wage in industry and construction will not be achieved, but in agriculture, in transportation and communications, as well as in trade and public nutrition, health care and physical culture, and in education, culture and art, the average wage will be increased even slightly more than was set forth by calculations.

The lagging of the growth of the average wage in industry and construction is connected, first of all, with the underfulfillment of the five-year plan for production output and the growth of labor productivity. But, even under these conditions, wages in basic industries of material production are growing faster than labor productivity. For example, in the yearly plans for 1976-1979, a growth in the average wage was set forth as 0.62 percent for industry and 0.46 percent for construction for a one percent increase in labor productivity (taking into account payments from the material incentives fund), but the actual growth for 1976-1979 came to 0.82 percent for industry and 1.05 percent for construction.

The transition to planning according to standardized pure production will help eliminate a similar discrepancy. At the same time, it is advisable to analyze the operating procedure for payment of capital for wages in order to more closely link the growth of wages with the growth of labor productivity.

When a shortage in the work force is experienced in highly industrialized rayons and in large cities, enterprises strive to retain workers at any price. Various measures are taken to raise people's wages which do not always take into account their personal labor contribution. However, increasing wages independent of a rise in labor productivity violates the correlation of the income of the population with the mass of goods and services offered, with all the negative consequences which flow from this act.

It is incumbent upon USSR ministries and departments, and particularly upon their economic services, to intensify control over expenditures of wage funds by associations and enterprises, at the same time to cease distortions of the socialist principle of wages for labor, and to make those guilty of this, those who allow it, strictly accountable. An indicator should be employed in economic practice such as a limit to numbers of workers, which, beginning in 1980, is being established for ministries and departments, and by the latter for associations and enterprises. Limiting of numbers removes the opportunity to recruit an extra supply of workers.

In recent times there has been an intensification of the role of bonuses for the stimulation of labor and the formation of the level and sizes of the growth of wages of workers and employees serving in the national economy, especially in industries of material production. The role of bonuses is also essential in the strengthening of labor discipline, especially relating to the 13th wage which is paid by taking into account uninterrupted service and the observation of the rules of internal regulations, i.e. discipline. In just 1976-1978, the amount of bonuses paid to workers and employees has increased almost 20 percent and comes to approximately one-seventh of the wage fund.

The proportion of bonuses in industry is much higher than in sovhozes. This may be explained, first of all, by the various opportunities to fulfill and overfulfill the state plan and by the formation of material incentive funds. Clearly, it is simpler to fulfill and to overfulfill the plan given to a number of industrial enterprises than the plan for sovhozes, the results of whose work depends not only upon material, human and financial expenditures, but also upon weather conditions. In this connection, the operational procedure for the formation of the bonus funds should be carefully studied, as well as the conditions for the awarding of bonuses to workers and employees, and measures should be developed which permit the equalization of the sizes of bonuses given to workers and employees serving in various branches of material production, in this way exerting an influence on the reduction of personnel turnover.

Also, the system for granting bonuses to workers and employees needs improvement in the direction of a close coordination of the payment of bonuses with final results; with the raising of the efficiency of production, the quality of work and the rate of the growth of labor productivity; and with the observation of labor discipline.

One of the effective ways to economize on labor costs and to strengthen labor discipline is to establish technically sound norms for all types of work, a system for their systematic revision, and a way to guarantee the proper accounting of the output of production (services) at work places.

The introduction of new wage and salary rates which was completed in the current five-year plan has permitted the raising of the proportion of technically sound norms and the expansion of labor norm setting in production industries. However, many enterprises have still not adopted sufficiently stepped-up norms of output.

Several ministries, in particular the USSR Ministry of the Coal Industry, the USSR Ministry of the Lumber Industry, and the Ministry of the Motor Vehicle Industry, are poorly organizing and directing work for the review of antiquated and understated norms, as this was set forth by the decree of the USSR Council of Ministers and the All-Union Central Trade-Union Council of May 23, 1973, "On Measures for the Improvement of Labor Norm Setting." In the period remaining until the beginning of the 11th Five-Year Plan, the USSR State Committee on Labor, ministries and departments must complete the development of materials for inter-industrial and industrial norm setting for labor in industry and must review antiquated norms.

It is necessary to give special attention to the improvement of labor norm setting for auxiliary work on the basis of inter-industrial and industrial norms and standards. The use of inter-industrial and industrial norms creates an equal intensity for work of the same type in various branches of the national economy and industry and contributes to the strengthening of labor discipline.

Labor norm setting must become a planned process. This means that enterprises should have calendar plans for the review of plans for each year which set forth the mutual obligations of the administration and the workers for the reduction of operating inter-industrial and industrial norms and for the introduction of new ones. Real measures must be reflected in them for the economizing of labor outlays in quantities which guarantee the fulfillment of the plan adopted for the growth of labor productivity. Work on labor norm setting must be under the strict control not only of the management of enterprises, but also of USSR ministries and union republics.

The acceleration of the rate of the growth of labor productivity in all branches of material production is dependent to a large extent upon how rapidly the new methods of planning will be introduced which were set forth by the decree of the Central Committee of the CPSU and the USSR Council of Ministers of July 12, 1979.

The reorganization of the economic mechanism is, at the same time, a psychological reorganization, affecting all aspects of labor relations. To accomplish it more rapidly is our immediate task.

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LABOR

MONETARY CIRCULATION, PLANNING OF WAGE FUNDS

Moscow DEN'GI I KREDIT in Russian No 3, Mar 80 pp 38-43

[Article by I. D. Slavnyy, Candidate of Economic Sciences]

[Text] The determination of the public's monetary income in the form of wages is of decisive importance for the correct planning of the proportions in the balance sheet for the public's income and expenses. The matter does not lie simply in the fact that the wage fund constitutes the overwhelming part -- approximately two-thirds -- of the total sum of the public's monetary income and that the wage fund is used as the basis for forming a number of other indicators in the balance sheet for the public's monetary income and expenses -- the public's tax payments, payments made to public organizations, and the payment of temporary unemployment benefits.

The main thing lies in something else: the volume and structure of the wage fund -- the ratio between the increase in the number of workers and employees and the average wages, the distribution of the number of workers and employees with regard to the size of the wages -- economically speaking, are the basis for the planning of such proportions of monetary circulation as the ratio between the public's expenses for commodities and for paid services, the channeling of measures to improve the structure of commodity turnover, in particular to increase the sale of durable goods and of commodities intended for household and cultural purposes, commodities with improved quality and of a broader variety, etc., and also to determine the extent of the possible involvement of the public's uncommitted funds, to be channeled into deposits and personal insurance.

The reduction of the proportion of low-paid and poorly-paid workers in the total number of workers and employees, the change in the ratio among the low-paid, average-pay, and high-paid categories of workers and employees, and the nature of the measures being carried out to increase the wages exert a great influence upon the determination of the structure of commodity turnover and paid services, and upon the channeling of the measures to find additional commodity resources.

In the socialist system of administering the national economy there also exists at the same time a reverse dependence between the planning of

monetary circulation and the wage funds. At all stages of development of the Soviet economy, especially during the period of mature socialism, the planning of the balance sheet for the public's monetary income and expenses, as well as the cash planning of monetary circulation exert a great effect upon the determination of the extent of the increase in the funds for the payment of labor, and upon the guaranteeing of the correct formation and use of the wage funds.

The establishment of a reserve for the wage fund, which reserve is to be accepted in the balance sheet, is of great importance for assuring the conformity of the wage fund to the extent and real needs of production, and for assuring the better coordination of the wage fund with the basic material and financial indicators in the plan for economic and social development.

Time-responsive administration of monetary circulation, carried out by way of Gosbank's cash plans, makes it possible to ascertain most rapidly the extent of the deviations from the plan for the wage fund, as well as the economic regions where these deviations are occurring, and, as has been shown by practice, is an effective and acute means of exerting an effect upon the economy with respect to the elimination of deviations that have occurred with respect to labor productivity, the number of workers and employees, and violations in the expenditure of the wage funds.

The establishment of the extent of issuance of cash in payment of wages, in Gosbank's cash plans, in and of itself sets a certain limit to the possible increase in the wage fund. Moreover, Gosbank, in the course of fulfillment of these plans, as it comes up against deviations with regard to that item of its expenses, can and must, in a time-responsive and prompt manner, ask the appropriate questions of the ministries and departments, as well as the republic-level, oblast, and local administrative agencies.

Another factor of great importance is the capability of bank supervision over the expenditure of the wage funds, which supervision, when correctly coordinated with the bank planning of cash issuances for wages, is an additional instrument for influencing the limitation of deviations from the plan for wage funds.

The practice of planning monetary circulation indicates that in this mutually coordinated work involving monetary circulation and the wage fund there have arisen a number of questions with regard to the further improvement of the organization and reinforcement of discipline in the planning of labor and wages, the resolution of which will exert an extremely desirable influence upon assuring the proportionality of monetary circulation.

In conformity with the decisions of the 24th and 25th CPSU Congresses, during the years of the Ninth and Tenth Five-Year Plans a large amount of work was carried out to improve the system of payment for labor, there was a substantial reduction in the gaps in payment for the labor performed by low-paid and high-paid workers and employees, and more correct correlations were established for the payment of labor among the workers in various categories, and among workers, engineer-technical personnel, and employees. There was a considerable increase in the role of the payment rate, the self-interestedness of the workers in the work on the basis of advanced, technically substantiated individual-output norms, and certain excesses in the providing of bonuses to administrative workers were eliminated.

Methods are being introduced to provide incentives, by freeing some of the workers for other duties; and the expenditure of the material-incentives funds is being coordinated to a greater degree with the final results of the work performed by the enterprise. New and even broader opportunities in this direction are being opened up by the carrying out of the measures stipulated by the decree of the CPSU Central Committee and the USSR Council of Ministers, entitled "On Improving Planning and Strengthening the Influence of the Economic Mechanism on Increasing Production Efficiency and Work Quality." Large-scale and important changes have been made in the system of payment of labor in agriculture. Certain measures have been carried out along the line of improving bank supervision of the expenditure of the wage funds.

All these steps along the line of organizing and paying labor and supervising the use of the wage funds have exerted a considerable influence upon the increase in the productivity of social labor and upon the development of the socialist system of the planned administration of the economy. A factor of great importance for reinforcing the planned nature of our economy was the introduction of the annual planning, and then quarterly planning, of labor productivity.

In the economic activity of the party and the Soviet state, questions of the further development of the entire system of the national-economic planning have occupied and continue to occupy an important place. The resolution of the critical questions of the planning of labor and wages, the elimination of the shortcomings existing in this area, will exert a considerable influence upon increasing the effectiveness of the use of the labor, material, and monetary resources, and upon strengthening the planned development of the Soviet economy. An important stage in this regard must be the indicated decree, in conformity with which a number of steps are being carried out to improve the system of planning of the economy, and industry has been changed over to the normative procedure of planning the wage funds.

One of the chief requirements for assuring the planned nature of monetary circulation and the correct use of the wage funds is the formation of a wage fund in complete conformity with the real increase in the labor expenditures in production. Therefore the conformity of the planned wage

fund to the production plan and to the computation of the plan for production costs, as well as the use of the wage fund in correspondence with the rate of fulfillment of the production plan should be viewed as a *sine qua non* for the planned administration of the economy and the assuring of the proportionality of the national economy and monetary circulation.

In the practice of management, however, there operate a number of factors that violate this condition.

First of all, discrepancies arise in the course of the fulfillment of the plan, as a result of the decisions that are subsequently made concerning the increase in the wage fund, which decisions are caused by the changes introduced into the production and construction plans. Such discrepancies are especially typical of the frequently-made decisions that pertain to construction, in particular as a result of the fact that the councils of the ministers of the union republics, the ministries, departments, associations, and enterprises, in accordance with the established procedure, can increase the wage funds for the carrying out of construction and repair operations in excess of plan, while searching, in the course of plan fulfillment, for additional material and financial resources.

Meanwhile, in many instances this increase in the planned wage fund, and sometimes in the number of workers, does not reflect the true increase in the volume of labor expenditures in production and construction. The report data frequently indicates that the volume of construction-and-installation operations as a whole for the country and for the individual ministries are not higher than that stipulated in the national-economic plan, and frequently it even lagged somewhat behind the assignments for the annual plan. Consequently, economically speaking, the increase in the wage fund in construction should not have occurred. As a result of failure to observe the planned proportions there arose a discrepancy between the wage plan and the real needs of production.

At the same time, practical life also demonstrates another aspect of the discrepancies arising between the plan for the wage fund and the production plans. In many ministries, departments, associations, and enterprises, no changes whatsoever are made in the plan for the wage fund when there is a reduction of the assignments for the increase in output or for the volume of construction-and-installation operations. In these instances a situation develops in which, in essence, the enterprises for a prolonged period of time have at their disposal a wage fund that was computed for a greater volume of operations.

These discrepancies between the production plans and the wage fund, in and of themselves, are not too considerable. However, they serve as the basis for the development or creation of the prerequisites for more substantial violations of the planning of the wage fund, namely, for acceptance in the plans for many enterprises of wages funds that have been

overestimated as compared with the indicators in the plan for economic and social development, together with an underestimation of the plan for labor productivity and an overestimation of the computations for the plan for the number of personnel in industrial production. In the final analysis this leads to the exceeding of the wage fund in the expenditures for the payment of labor to increase labor productivity, and to the increase in the production costs.

There are two basic reasons for these violations of the plan.

First, the enterprise plans for the wage fund and labor productivity are corrected and changed very frequently; this does not conform to the observance, either in the plan or in its execution, of the correct correlation between the increase in labor expenditures and the increase in the expenses to pay for that labor.

Secondly, there is a lack of the proper verification of communication down to the enterprise level of the assignments that have been established for the ministry for the wage fund and for labor productivity, or the computations of the plan for the volume of production and the number of personnel in industrial production.

Another factor that exerts its influence is the fact that, in the system of planning labor and the wage fund, there is no complete finality or necessary coordination of its indicators. For example, in the plan for economic and social development the assignments for labor productivity are established from the point of view of the individual branches -- industry, construction, transportation, agriculture, etc. However, the wage fund that is established for the ministries does not contain any distribution by branches.

Whereas the statistical reports pertaining to labor productivity make it possible to establish any divergence between the enterprise plan and the assignment in the plan for industry as a whole and for individual industrial ministries, it is impossible, on the basis of the wage fund, to establish such divergences. Nor is there the opportunity to determine the extent of the deviations made by individual ministries from the computations in the plan with regard to the increase in the expenditures of wages per unit of increase in labor productivity.

The lack of this information makes it impossible for planning agencies and the financial and banking system to carry out the proper supervision over the use of such an important element in the cost of producing output and in monetary circulation as the wage fund, or to supervise in a meaningful manner the fulfillment of the computations of the plan with regard to production costs in industry and the production costs of construction-and-installation operations.

In view of the instability of the enterprise plans for labor, the changes made in the wage fund in the course of fulfillment of the plan, without

the proper coordination with production and construction, as well as the produced increase in the extent of the payments from the material-incentives funds, the opportunity has been created for the violation of the plans for labor productivity and wage funds, as well as the computations of the plan for the number of personnel in industrial production. The composite data pertaining to labor in recent years indicates that in individual industrial and construction ministries the assignments established for the enterprises with regard to labor productivity (according to the total of their plans) are considerable lower than the assignment determined for the ministry, while the wage fund is higher. There has also been a substantial overestimation of the number of workers and employees, as compared with the plan computations.

Exceptional difficulties have been created for the carrying out of effective bank supervision over the expenditure of the wage fund. This is linked with another aspect of the present-day practice of planning, namely, with the use, by the bank institutions for the purpose of determining for the enterprises the amounts of funds to be issued to pay for wages, of indicators for the production of output (or the volume of construction-and-installation operations), submitted to the bank institutions by enterprises themselves, which indicators (according to the total of the enterprise plans) can differ from the assignments established for the ministries. In the practical situation, the overestimation of the assignments for labor productivity is linked with and based upon the underestimation of the production plans.

The existing system of bank supervision over the expenditure of the wage fund is based upon the principle that the enterprise's plan provides for the conformity between the volume of production and the labor expenditures, a conformity which is necessary for the fulfillment of the planned assignments, on the one hand, and the wage fund that must correspond to those labor expenditures, on the other.

Under conditions when the enterprises have been making a slight underestimation of the computations in the plan for the increase in industrial production -- an indicator according to which Gosbank carries out supervision over the majority of industrial enterprises -- and an overestimation of the wage fund, bank supervision over the expenditure of the wage fund is incapable of revealing correctly or promptly any violations when the enterprises receive additional money to pay the wage fund as a result of overfulfillment of the production plan and when it is necessary to reduce somewhat the issuance of money for wages when there is nonfulfillment of the production plan. In both kinds of instances it is possible to observe an overestimation of the amount of the funds to be issued to pay for wages. Apparently this is one of the reasons why the economy makes incomplete use of its right to obtain additional funds for wages when there is overfulfillment of the production plans.

Under present-day conditions, when there has been an increase in the importance of the qualitative indicators of production, the entire organization of the planning of the payment of labor should be adapted, to the maximum degree, to the elimination of any excesses in the expenditure of the wage funds, and to the revealing of any opportunities for the better use of the labor resources.

In order to increase the effectiveness of planning the wage fund and labor productivity and, on that basis, monetary circulation, it is necessary to resolve more rapidly the task of strengthening the stability of the enterprise plans, which presupposes the further improvement of the economic work of plan development. At the same time it is necessary to increase the discipline of labor planning, for which purpose it is necessary to raise the level of economic and supervisory work in the ministries, and also to increase the degree of supervision by the planning agencies over that aspect of the work of the associations and enterprises.

A factor of tremendous importance is the creation of that planning procedure which would make it possible, in the branch cross-section, to have at one's disposal promptly the data concerning the extent of the discrepancy between the enterprise plans for labor and wages, and the assignments that have been established in the plan for economic and social development.

In order for the bank supervision of the expenditure of the wage fund to be able to make proper use of the capabilities in the struggle against the unsubstantiated exceeding of the wage fund, it is necessary to create for the bank a necessary base for checking the rate at which the enterprises are fulfilling the production plans. This requires first of all that the bank have at its disposal promptly the production plans that have been established for the enterprises by the ministries, departments, and associations, and also requires that the fulfillment by the enterprises of their assignments for the production of output to be determined by the relationship to the plan indicators that were established by the ministry and association.

It would also seem to be desirable to reorganize somewhat the bank's work of supervising the expenditure of the wage fund: in that work, a greater place should be occupied by the analysis and verification of the fact that the enterprises' plan for labor and wages correspond to the plan established for the ministry or department.

It would seem to be desirable, in addition, to carry out work involving the scientific study of questions concerning the correlation between the increase in labor productivity and the increase in the average wages (in the branch cross-section) under conditions of the acceleration of rates of technical progress, the replacement of manual labor by machine labor, and the mechanization of subsidiary operations at industrial enterprises. In the practical situation one encounters instances when there are very large discrepancies between the computations of the plan for the increase in the average wages and the report data pertaining to that indicator. There arises the question of the extent to which this is the result

of objective causes or of shortcomings in the planning and organization of production.

The resolution of all these vitally important organizational questions of improving the procedure of planning labor and wages and of reinforcing planning discipline in these regards retain importance both when planning the wage funds in absolute totals and when planning the norms for expenditures of wages per unit of output.

The changeover to the norm method of planning the wage funds for industrial-production personnel at enterprises is directed at intensifying the self-interestedness of the enterprises in the fulfillment and overfulfillment of the plans for production of output. The volume of the wage fund that the enterprise will have at its disposal is now put in direct dependence upon the increase in production. This incentive-forming role of the norm method must be reinforced even more with the changeover to the planning of the volume of production not according to the indicator of gross output, but, rather, according to the indicator of the norm-net output, inasmuch as the volume of the enterprise's activities will be determined by the labor expenditures carried out at the enterprise itself and by the effectiveness of the use of labor resources.

In the new and improved system that is being created for the planned administration of production, at the same time, provision is made for the retention of the planning of the labor productivity, and a limiting of the number of workers and employees is introduced. Consequently, the plan for labor and the wage fund at the enterprises now will represent the unity of three indicators -- the wage norm per unit of output; the assignments for increase of labor productivity; and the number of workers and employees.

It is only when all these three indicators of the plan for labor are coordinated correctly that there will be an assurance of the effective use of the funds for the payment of labor, that is, there will be an assurance of the planned correlation between the labor expenditures and the payment of that labor.

Under these conditions a factor that takes on even greater importance is the observance of strict planning discipline with regard to all the mentioned indicators in the planning of labor. Overestimation of the norms for the expenditures of wages can cause a large violation of the ratio -- established in the planning balance sheet for the public's monetary income and expenses -- between the fund for the payment of labor and commodity turnover. An extremely undesirable effect upon the work of the enterprise and upon encouraging its self-interestedness in the economical use of the wage funds can be exerted by the uncoordinated change of the plan over the course of the year with regard to the norms for expenditure of the wages per unit of output, and the assignment for increase in labor productivity, and for the number of workers, with a refinement of the production plan.

Therefore the elimination of the shortcomings that have been observed at the present time in having the ministries and departments communicate down to the enterprise level the assignments for the wage fund and the labor productivity, and also in the nonobservance of the stability of the corresponding indicators, remains an acute question that will require the future attention both of the planning agencies at the economic organizations, and the agencies of Gosplan and the financial and banking system.

It should be kept in mind that a study of the practical aspects of the work performed at enterprises where the norm method of planning wage funds is already being used, indicates that very frequently the norms are changed during the course of the year and that these changes are not coordinated with the overall norm that has been established for the appropriate ministry or department. Thus, the observance of planning discipline for labor and wages remains a vitally important task both with the existing procedure of planning and when carrying out the new procedure, which is supposed to be introduced starting in 1981.

A factor of great importance is the correct communication down to the enterprise level of the established indicators for labor and wages, as well as the computations in the plan for the production of output, not only for the year, but also by quarters of the year. The materials provided by inspections, and report data, indicate that frequently the assignments for labor productivity and for the production of output are underestimated for the first quarters of the year, and this also is one of the reasons for the surpassing of the plan for the wage fund.

When speaking about the questions of planning the wage fund, one cannot disregard the problem of the territorial planning of this, the largest income of the public.

As is well known, the planned balance sheets for the public's income and expenses are not yet established for the union republics, but are only approved by the USSR Council of Ministers, and, consequently, they are not to the fullest extent a plan, the responsibility for the fulfillment of which is borne by the corresponding administrative and planning agencies. Under these conditions a number of items on the republic-level balance sheets for the public's monetary income and expenses are frequently formed without the proper consideration of all the processes linked with the formation of the public's monetary income and its expenditure. Still greater shortcomings occur in the planning of the oblast-level balance sheets for the public's monetary income and expenses, and in the supervision of their execution.

One of the fundamental reasons for the insufficient role played by the basic plan for monetary circulation in the republics and oblasts, which, as was previously mentioned, the balance sheet for the public's monetary income and expenses must be, is the lack of a planned wage fund for the union republics and oblasts, which encompasses all the labor payments made

by the enterprises that are located on the territory of the corresponding republics and oblasts.

A factor of even greater importance is the resolution of the problem of establishing a smooth system of planning the wage funds in the territorial cross-section for another plan for monetary circulation -- the Gosbank cash plan. The effectiveness of this plan for the time-responsive administration of monetary circulation, one might say, considerably depends upon the correct determination of the expenses for the payment of wages. The overestimation or underestimation of this basic item of cash expenses of Gosbank lessens the role and work of the republic-level, oblast-level, and local administration and planning agencies in ascertaining and overcoming any violations that have occurred in the expenditure by the enterprises and organizations of their wage funds, and also, to a certain degree, the carrying out of the necessary measures to provide commodities to meet the public's effective demand.

In the creation of the territorial planning of the wage fund there exist definite difficulties which are mostly of an organizational order, but if one demonstrates the proper purposefulness and persistence they can be overcome. The decisions that have been made in the union republics in conformity with the new Constitution, and that expand and reinforce the economic activities of the oblast and rayon executive committees of the people's deputies, including the activities involved in developing plans for the monetary circulation and the satisfying of the public's effective demand, emphasize the acuity of the question of the need to raise the level of planning of monetary circulation in the outlying areas, which presupposes the reinforcement and development of the entire system of territorial planning of wage funds.

The fulfillment of the basic indicators of the computations in the financial balance sheet and the plan for monetary circulation in recent years indicates that it is necessary to continue to improve the work of coordinating the financial and credit plans with the plan for monetary turnover.

In monetary turnover, the movement of monetary means acts in various forms and, correspondingly, is administrated in a planned manner by various monetary plans: the financial plans of the branches and enterprises; the state budget; and short-term credit plans. The unity of monetary turnover as a whole, of all forms of movement of monetary funds, and the financial and credit plans for the administration of monetary turnover emerges in the financial balance sheet of the national economy, the result of which, in the final analysis, determines the change in the size of the monetary mass in circulation. The changeover to the preparation of the composite financial balance sheet that has been stipulated by the decree of the CPSU Central Committee and the USSR Council of Ministers, entitled "On Improving Planning and Strengthening the Influence of the Economic Mechanism on Increasing Production Efficiency and Work Quality" will contribute to the better coordination of all the monetary plans and to the more precise determination of its result.

Financial and credit relations act as the mediator for, and reflect, all the processes of creating the social product and the national income, of distributing and redistributing the national income, and, at the same time, control these processes, contributing to the increase in the effectiveness of production and the balanced state of the national economy. Therefore the financial and credit resources of the economy and the state are a direct source of the public's monetary income. The public's expenses to pay for commodities and services, and for payments and the formation of savings, in their turn, are controlled by finance and credit, since they are the source of financial and credit resources.

Financial and credit plans directly reflect the costs of production of commodities, their transportation, the production costs of construction-and-installation operations, including the necessary wage fund for the workers in material production in conformity with the necessary expenditures of live labor. Thus, the financial-credit plans, reflecting the movement of the monetary means, are the first line of the planned administration of the overwhelming part of the wage fund, which [part] must indicate all processes of increase in labor productivity, the number of workers in that sphere of the national economy, and the level of expenditures of wages per unit of increase in labor productivity. However, in view of the fact that the production costs of the output are not planned, the expenditures for the payment of labor find their reflection in the plan for monetary accumulations.

Consequently, the exceeding of the wage fund in material production must find reflection in accumulations, if it is not compensated for by above-plan economizing as a result of material expenditures. And yet the practice of recent years indicates that frequently, for individual branches, with a substantial exceeding of the wage fund and underfulfillment of the computations of the plan for economizing in material expenditures, the accumulations plan is fulfilled completely or with relatively small deviations.

This situation attests to the incomplete coordination of the financial plans for accumulation with the wage fund. If this is the result of overestimation of the costs of production with regard to the expenditure for the payment of labor, in this instance the financial plan does not contribute to the better use of the resources of production. If there is reflected in it an underestimation of the wage fund, a surpassing and overexpenditure of the wage fund are inevitable, and this will have an effect upon accumulation and the balancing of monetary circulation.

From what has been stated there evolves the necessity of achieving a better coordination of the profit plan with the wage plan. The financial and banking system must reveal similar instances of lack of coordination, and attempt to eliminate them. It is necessary, in particular, to check more carefully the settlements involving the average wages, taking into consideration the fact that it is with regard to this element of wages that the greatest deviations from the plan occur. The guaranteeing of the

correct coordination of the financial, credit, and monetary plans and balance sheets is an important requirement for the planned administration of the economy and the effective use of the material, labor, and financial resources.

The question of improving the coordination of the financial plan, with regard to the monetary accumulation, with the plan for the wage fund is also linked with the necessity of guaranteeing the planning of the wage fund in the branch cross-section for each ministry and department. The overall data concerning the discrepancy between the fulfillment of the plans for monetary accumulation and the wage fund for the national economy as a whole is very important, since it encourages an economic analysis of the reasons for those discrepancies, but, nevertheless, it is insufficient. For the economic and control work of the planning and financial agencies, a factor of great importance is the prompt detection of the discrepancies that have arisen in the indicated data for the branches of the national economy and for the individual ministries and departments.

A question that is of vital importance is the question of improving the coordination of the plans for monetary accumulations and wage funds in construction, where, as has been pointed out, in the course of the fulfillment of the national-economic plan, there occurs an increase in the planned wage fund, which increase does not always reflect an increase in the expenditures of labor.

The elimination of violations in the planning of labor and wages, the reinforcement of planning discipline with regard to labor, will contribute to guaranteeing the conformity of the fund for payment of labor to the actual expenditures of labor. It not only will not hinder the introduction of new forms and methods of material incentives for the increase of labor productivity and the fulfillment of the production plan with relatively fewer workers, but, on the contrary, will aid those processes. The carrying out of measures to achieve economy in the expenditures of labor and in the funds for paying for that labor, which will be based on real indicators, will aid in the rapid dissemination of the achievements of the enterprises at which various recommendations for improving the organization and system of paying for labor have begun to be carried out effectively.

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APPLICATION OF KARPOV INCENTIVE SYSTEM ANALYZED

System Applied by Electronics Institute

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 29 May 80 p 2

[Article by Latvian Academy of Sciences Academician E. Yakubaytis, vice president of the Latvian SSR Academy of Sciences, director of the Institute of Electronics and Computing Equipment, and Candidate of Technical Sciences V. Pelikeyko, deputy director of the Institute for Scientific Work, Riga]

[Text] Ten years ago our institute was among the first to convert to the "Karpov system." The purpose was clear: We tried to find an optimum variant for combining moral with material incentive for scientific work. The reasons for the conversion are equally well known: Before it, the salary of a scientific associate was determined by his position, degree, title, and labor seniority. In other words, these were categories which, in themselves, had no relation to the creative activity of a person or the real significance of the results he achieved.

Frankly, we still find in the scientific world people who work zealously in pursuit of a title or position. Having reached it, their thrust noticeably declines. The result is a violation of the simple truth that a wage must be earned. Consequently, efficiency turns into pragmatism and inertia and routine blossom. In order to avoid this, all material and moral incentives, including the earnings of the scientist, must be based on the direct results of his work. It was precisely this that attracted us to the new incentive system.

It may appear initially that the essence of such conversion is a somewhat changed procedure for the organization of a salary scale "in the spirit of the times." In fact, a complex of interrelated measures is required, aimed at changing the traditional organization of the work and the very process of activities of the scientific institution. Let us add to this a restructuring of the internal microclimate, if you wish, a moral self-advancement. Finally, also needed is a higher level of educational work on the part of the social organizations which largely determine the objective and harmonious nature of evaluation criteria.

The new incentive system has many opponents. There is no shortage of skeptics either. The stumbling stone for most of them is the same old question: How to assess scientific work in its development, what to consider as its main aspect, and to what should priority be given. Is it possible to develop a relatively reliable system of criteria with which to assess results of scientific work?

Our 10-year long experience enables us to assert that yes, it is possible. Within this time only two out of over 2,000 certifications issued by the institute have been disputed. This is less than one-tenth of one percent. In only two cases have associates exercised their right to express disagreement with the conclusions of the certification commission. We believe that this statistical figure confirms the accuracy of our actions in adapting the new incentive system to the specific nature of our institute.

We realized, from the very beginning, that material incentive will not yield a positive effect if it is merely reduced to an automatic raising or lowering of salaries. In this case it is equally dangerous to treat everyone differently and to reduce to a common denominator the activities of different scientific subdivisions. For example, our institute has had a number of successful applied developments. However, its main task is to engage in basic, theoretical, and experimental research. This means that we are far from always justified to expect from our laboratories and individual associates a specific and immediate return which would be easy to measure. It was with this in mind that a method was developed for assessing the effectiveness of our scientific research work.

The method stipulates the use of both quantitative and qualitative indicators which are initially summed up and, subsequently, compared in the case of the individual associate, with the size of his salary and bonus and, in the case of subunits, the number of associates and their wage fund. The quantitative indicators include the number of scientific publications and reports, papers read at conferences, and applied development. Understandably, such indicators do not reflect the real theoretical or applied importance, topical nature, and practical value of a project. Therefore, they are supplemented by qualitative indicators which take into consideration inventions, patents, state prizes, diplomas, and medals earned at international exhibits, and awards granted by the Academy of Sciences Presidium. We have introduced into the "Karpov system" some amendments dictated by practical considerations: For example, should the volume of work of an associate change, his salary may be revised before the expiration of the two-year term, while keeping him in his former position.

We paid particular attention to resolving the problem of bonuses. We immediately adopted the rule that in no case should a bonus be converted

into an ordinary salary supplement. Having thoroughly studied returns from supplements to wages and bonuses, we saw to it that the latter be directly related to the specific contribution. We are also extensively using target bonuses for the achievement of best results in scientific, technical, or auxiliary activities. Since the material incentive fund is increased directly as a result of wage savings, the institute subunits are profoundly interested in fulfilling assignments with a lesser number of associates.

In addition to assignments carried out as part of regular duties, the moral and material incentive system includes regular scientific contests through monographs, reports, lectures, and development of new instruments. Bonuses for the best works are divided among their authors in proportion to their individual contributions. Practical experience has confirmed that such an open competition method is particularly popular among the creative workers.

Using our efficiency rating system, we tried to determine the impact of all such measures on the institute's activities. We reached the conclusion that in recent years our "effectiveness coefficient" has risen by no less than 20 percent. This is a substantial accomplishment for an institute which was already working intensively. Another detail became clear: Our associates consider far more important not the size of supplements and bonuses but the very fact of their award. The new system did not bring about discord in the collective, as was feared by some. Conversely, the atmosphere of efficiency, accuracy, and purposefulness strengthened. Principle-mindedness, frankness, and a feeling of responsibility for final labor results rose. Seeing this, other institutes in the republic are hastening to convert to the Karpov incentive system.

Unquestionably, neither any further intensification nor, even less, greater flexibility of application would be counterindicated in this system. We are convinced, however, that it is precisely on its basis that the search for qualitatively new methods for the stimulation of scientific research should be continued.

Quality Research Institute

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 29 May 80 p 2

[Article by Ye. Dobronevskiy, manager of the laboratory for the statistical study of work quality of the Scientific Research Institute of the USSR Central Statistical Administration, Moscow]

[Text] It would hardly be possible to object to the idea of the "Karpov system" itself--of making the wages of scientific workers dependent on results. However, both supporters and opponents of the system agree on the fact that the means used for such assessments are still far from perfection. The main principle itself--instituting salary supplements

for the next two years--is unquestionable! It means, in fact, an acknowledgment of past services without in the least guaranteeing the fact that this acknowledgment will influence subsequent work results.

I, personally, have been both the subject of certification and head of a subunit in charge of certification, and member of a certification commission. I shall not disclose a big secret by saying that the main difficulties in the activities of such a commission are frequently not the objective assessment of the results of the work of their colleagues. Far more painful are attempts to combine the rating of those certified with the limitations of a rigid wage fund and its apportionment. This planned or forced violation of the main principle of establishing a strict interdependence between salary and personal contribution undermines the authority of a good idea. However, even more negative results may occur.

The "Karpov system" was born in an institute which, regardless of sectorial affiliation, retained many of the features of an academic institution. Currently, a great variety of collectives are adopting this system, introducing individual "amendments" to it. Usually, this is based on the claim that after the application of this system the work indicators of virtually all institutes have improved considerably. Frequently the All-Union Scientific Research Heat Insulation Institute, in Vil'nyus, where "the effectiveness of research and development has increased by a factor of 11" is taken as the standard!

I shall not undertake to judge the previous work of the institute to make such a leap possible. I believe, however, that even such examples cannot justify the extensive undertaking of a social experiment such as conversion to the "Karpov system." So far, it has no scientific substantiation, developed method, or specific evaluation criteria. Is such an unscientific approach to establishing scientific parameters justified?

I can anticipate the objection that an experiment is carried out precisely for the sake of finding an optimal solution to a problem. However, since when have we begun to consider that the best method is "cut the cloth first and then measure?" The more so since we are well familiar with the trials to which the moral and psychological climate of a collective is subject every time there is certification.

I know from personal example that after a certification and the establishment of the new wage rates, like following a storm, it takes a while for a normal work atmosphere to be reinstituted. Associates whose salaries have been lowered, (naturally, they are a minority), consider that those who have had their salaries raised are responsible for their failures. The latter, even though quite deservedly encouraged, in turn, also fail to express any particular enthusiasm, since the supplement is usually far from the maximum or the expected amount. The largest group is the

one whose salaries remain the same. Yet, they too, being confident of an impeccable implementation of their obligations, consider themselves undeservedly ignored. And all of them share a definitely lower opinion of their immediate superior who is accused of partiality, of failure to stand up for someone and do more for him. Consequently, instead of a united collective, which is needed for achieving new successes, the collective breaks down.

Let us also not fail to mention a trend which has developed of adapting the new wage system to the solution of "special" problems. Thus, changing the grade of the "Karpov ladder," some managers have converted it into a means for attracting needed personnel from other institutes through arbitrary offers of high salaries. In addition to the fact that such "methods" disorganise the work of other scientific research institutes, they also damage the moral climate of the collective.

I wish to be understood properly: I am far from the simple rejection of the "Karpov system." However, the system should not be automatically applied everywhere, and even less presented as a means for the solution of all difficulties. The essential positive influence of this system is the fact that its appearance has enhanced the interest in measuring and assessing the labor results of every member of the scientific collective. In itself this is a positive phenomenon. However, it does not mean that one should lightly abandon all means for stimulating scientific work known so far.

For example, the supporters of the "Karpov system" claim that it is a powerful means for influencing careless or unsuitable scientific workers. Yet, there are extensive measures to this effect, stipulated in the labor legislation. The frequency with which they are used by the managers is a different matter. I am afraid that, for example, few people are familiar with Point 23 of the current instruction on the procedure for vacating a position: It gives the right, based on the decision of the scientific council, to release from work or transfer to a lower position an associate who has failed to cope with his obligations without awaiting the expiration of the term. How many cases have there been of the use of this point as a means of influence? There have been none. It is far simpler to hide behind a certification than to speak out openly at a meeting of the scientific council.

The collection of traditional means for encouraging good workers is equally extensive. As we know, the heads of scientific collectives have been granted the right to give supplements to salaries within the limits of the approved wage fund. The bonus funds available to institutes are also quite extensive. The way they are used is a different matter: Are they always such as to promote science? Should we not blame ourselves for the fact that, frequently, the bonus loses its stimulating role?

It is no secret that in some institutes the bonus has become a permanent salary supplement. Should the question of a bonus arise, it is based on the "reverse principle!" A special order must be issued based on an official report bearing a number of signatures before the amount of the bonus is lowered for omissions in the work (please note, precisely in cases of lowering the bonus rather than awarding it for high results!). What about the amount of the bonus? The situation is no better. At the end of the quarter, half-year or year, in a number of institutes the bonus fund is divided evenly. Those bypassed feel insulted. Complaints that a "tradition" has been violated are filed!

Yet, it is precisely the bonus--a reward for specific successes, strictly consistent with individual contributions--that could become a powerful incentive for scientific work. However, in order for this to happen, its amount should be consistent with the work done while the bonus funds should be spent for that specific purpose. In this case we could also consider a kind of "brigade contracting" in science in which the need for collective efforts would become a far more effective means than the principle of "everyone for himself" inherent in the "Karpov system."

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LABOR

INCOMES OF VARIOUS SOCIAL GROUPS

Moscow EKONOMICHESKIYE NAUKI in Russian No 4, Apr 80 pp 64-69

[Article by Candidate of Economic Sciences Z. Aleynikova: "The Structure of Incomes for Various Social Groups." Minsk]

[Text] At the stage of developed socialism when society has at its disposal growing economic opportunities for improving the well-being of the people, a broad program for approximating the incomes of the different social groups is being put into effect. The state's policy in this field is built by proceeding from the objective features of the make up of the incomes for each such group. The more fully these features are taken into account, the more successfully the general course toward equalizing incomes is realized.

In terms of its structure, the gross income of the statistically average individual contains many elements. It includes wages, benefits, pensions, allotments, incomes from auxiliary economic activities and so forth. In a planned economy, definite relationships conditioned by the nature and purpose of a given kind of payments are established between all the components of gross income. As is known, one of the main principles of socialist distribution relationships is material incentive for the labor activity of the members of society. Hence the reason that the absolute size of payments from participation in social production is greater than the other components making up gross income.

Given such prerequisites, the size of the gross income of the statistically average member of society "averaged" for all those receiving individual incomes depends not only on the absolute magnitude of the individual elements of income taken in isolation but also on the structure of those receiving individual incomes. The greater the proportion of persons with a high individual income in absolute terms, the correspondingly higher the general level of gross income.

The structure of social groups in terms of sources of income is by no means the same. The table on the following page shows this structure, as compiled from the 1970 All-Union Census.

Structure of Social Groups*
(as a percentage of the total number for each group)

Social groups	Population		Persons maintained by the state	Students with grants	Dependents
	Engaged in social production	Engaged in private auxiliary farming			
Workers	48.4	0.7	12.1	1.2	37.5
Employees	36.1	0.1	7.3	2.6	33.8
Kolkhoz farmers	36.2	1.7	24.4	1.0	36.6
Urban population	52.4	0.2	11.8	2.3	33.2
Rural population	41.8	1.5	15.8	0.3	40.5

The breakdown in the table favors employees, workers and the urban population: about half of all persons in these groups are engaged in social production. Among kolkhoz farmers, however, those engaged in social production make up slightly more than one-third, while persons supported by the state and dependents constitute 62%. Accordingly, even if the differences in wages between the spheres of labor activity for the social groups in the population are eliminated, the very structure of the social groups predetermines a lower level for gross incomes for kolkhoz farmers when compared with incomes of workers and employees, and for the rural population when compared with the urban population. In 1977, real incomes for kolkhoz farmers calculated per member of the family were 87% those of workers and employees.¹

The state's active policy aimed at accelerating the development of production forces in agriculture and improving distribution relationships is promoting the preferential growth of wages in this sector of the economy. During the 8th Five-Year Plan the incomes of kolkhoz farmers from public farming increased 42% while the average wages for workers and employees increased 26%; during the 9th Five-Year Plan this growth was 25% and 20% respectively,² and in accordance with the plan for the 10th Five-Year Plan the figures are 27% and 18% (maximum values) respectively.³ At the same time, in the agrarian sector there has been accelerated change in income structures. During the period 1960 through 1978 the proportion of incomes from the kolkhoz in the gross incomes of kolkhoz farmers' families increased by a factor of almost 1.3, while the proportion of wages in the incomes of the families of industrial workers remained virtually unchanged.⁴ And this despite the fact that in the countryside the proportion of the active population engaged in social production was declining. During the period between the 1959 and 1970 USSR Censuses it fell from 48% to 41.8%,⁵ and in the seventies to 38%.⁶ In this kind of situation, the growth in the absolute

*According to data from "The All-Union Census 1970" Moscow 1973. Vol. 5, pp 155, 162

level of wages for the rural population led to considerable progressive changes in the income structures merely as the result of the fact that the negative effect on incomes caused by the structure of this group of the population was in essence neutralized by the forced growth in wages accomplished through the economic potential of the country as a whole.

It cannot be asserted, however, that this phenomenon will occur so fully in the future. Now, when the difference in the wages for agrarian and industrial labor has in the main been brought into line with the level of labor productivity in these spheres of the economy, wage growth in agriculture becomes increasingly dependent on improvements in labor productivity. Accordingly, even in the 9th Five-Year Plan remuneration among kolkhoz farmers increased only half as rapidly as in the 8th Five-Year Plan, and in accordance with the plan for the 10th Five-Year Plan growth will be the same as that actually achieved in the 9th Five-Year Plan.⁷

In such conditions a favorable background is being created for influencing incomes through the differences in the proportion of the population recruited into social production. As a result of the special role noted for wages in gross incomes, the differentiating significance of differences in the degree of employment in socialized production is retained even when there is a corresponding growth in remuneration in agriculture during the process of converting agrarian labor into a form of industrial labor: the level of gross income for the social group, with fewer people engaged in social production, is low even in these conditions.

With the structural feature causing the differences in the incomes of the social groups in the population, an effect is also caused by the high proportion of the rural population and kolkhoz farmers supported by the state.

In the process of improving the social security system, conditions are now being equalized for obtaining payments and for the minimum amounts of payments for all population groups. Since it predetermines the size of pension payments, simultaneously with this, wage growths lead to an increase in pension payments for the rural population. As a result of these measures, gross incomes for the rural population, and particularly for kolkhoz farmers, are increased. Nevertheless, even given the same average amount of pensions and benefits for the entire population, the incomes of social groups with a large proportion of persons supported by the state would be lower than the incomes of social groups having a smaller proportion of such pensions.

The proportion of dependents for individual persons is about the same for all social groups.⁸ Given the substantially different proportion of those engaged in social production, this leads to an unequal number of dependents for each workers. According to data from the 1970 All-Union Census, among employees, the figure for dependents for each working person is 0.60, for workers 0.77, and for kolkhoz farmers 1.01; urban figures are 0.63, rural, 0.97 dependents.⁹ As a result of this, gross per capita incomes for kolkhoz

farmers and rural inhabitants are lower compared with incomes for the other population groups since the state still does not fully compensate for the dependents. For example, in the 9th Five-Year Plan, according to available computations, the free and benefit content for children in children's institutions, including the payment of benefits in money for children through the public consumption fund averaged only 10-15% of all expenditure on material maintenance for them.¹⁰ Therefore, dependents lowered the level of family incomes by an average of 30%.¹¹ During the 10th Five-Year Plan when state pension maintenance covers former kolkhoz members having the required length of service at kolkhozes or a mixed length of service at kolkhozes and state or other enterprises (or organizations or establishments), the effect of this structural feature on incomes has been somewhat weakened. This is also being promoted by other trends in the utilization of public consumption funds carrying certain sociodemographic burdens: the introduction of supplementary payments for children in families with a monthly per capita income of less than 50R, the establishment of benefits for poorly provided families through the use of children's institutions. The direction moved in by these measures does not directly affect differentiation in incomes for the social groups indicated since they are set up in accordance with other signs, either proceeding from the distribution of all families according to level of income or in accordance with the distribution of the entire population according to sources of income. Therefore, reduction in social differentiation in incomes is achieved indirectly: as soon as the specified groups (the rural population and the kolkhoz peasantry) are characterized on the whole by a relatively low level of income, the measures we are talking about affect them to a greater degree. Moreover, in these groups, as a rule, the very factors of differentiation are seen more distinctly. For example, it is known that the number of multiple children families in a rural locality is higher than in an urban locality and that the proportion of children among the rural populations is also greater.¹²

The negative effect of this structural difference on the incomes of the rural population, and in particular kolkhoz farmers, will be felt, although less strongly, even in conditions where expenditure on the upkeep of dependents is completely compensated for a family. The action of this difference is based on the fact that wages exceed the other components of gross income.

On the basis of the above it can be said that in terms of sources of income, the structure of the social groups considered can be isolated as a factor in income differentiation. Here, however, it should be noted that despite this factor, the gross incomes of each social group in the population are growing steadily. This is insured by the economic policy of the state aimed at consistently increasing individual incomes for all categories of the population on the basis of uninterrupted growth in socialist production.

It is proper to pose the question of whether it is possible to mitigate the differentiating effect of the factor being considered on incomes. Here it is a question primarily of the possibility of increasing within the

structure of the kolkhoz peasantry and rural population the proportion of the active category, namely persons engaged in social production. Even until recently, into the seventies, when economic development took place largely under the effect of extensive factors, increasing employment in the national economy was regarded as a substantial factor in the growth of the population's income.

Investigation of the structure of the kolkhoz peasantry and the rural population has shown, however, that it now no longer contains potential opportunities for any substantial increase in the proportion of those engaged in social production. Persons engaged in private subsidiary farming represent an insignificant reserve, and this also pertains (although to a lesser extent) in other social groups. While private auxiliary farming itself exists, it is apparently inevitable that a certain part of the labor force will be removed from social production. In addition, as is noted in the literature, by no means all the labor resources engaged in private auxiliary farming, where use is made of a great deal of labor of such people who either are entirely unable to participate in social production or who can participate only irregularly, can be directed into social production.¹³ But the most important point is that private auxiliary farming has now reached the kind of stage at which a reduction in the proportion of those engaged in it through recruitment into social production is becoming virtually impossible. This is indicated by the dynamics in the recruitment of persons from domestic and private farming in the growth of labor resources in social production: during the 7th Five-Year Plan the figure was 53%, in the 8th Five-Year Plan, 25%, and in the 9th Five-Year Plan, only 1.5%.¹⁴

With regard to the second group of persons not engaged in social production, namely the dependents, they could make substantial changes in the structure of the social groups of kolkhoz farmers and the rural population if this category of persons made up a significantly larger proportion than among workers, employees, and urban dwellers. In fact, in a number of cases an inverse dependence is observed: as can be seen from the structure of the social groups (see table), among workers the proportion of dependents is higher than in kolkhoz farmers.

The basis of the structure set up for the separate groups of the population in terms of income is objective since it reflects the growth features of each group. For example, according to the 1970 census, among urban dwellers 59.8% of persons are of working age, while the figure for the rural population is 46.5%.¹⁵ In essence, these figures characterize the similar differences in the structure of social groups according to age and sources of income: the smaller proportion of those engaged in social production is noted in the social group that also corresponds to the least proportion of persons of working age. On the basis of the unchanging nature of migration processes, no substantial changes can be predicted for the age structure of the rural population. The process of aging continues in the rural population. young people aged 16 to 29 make up the main exodus from the countryside; in individual regions of the country 70% to 80% of migrants are persons of working age.¹⁶

Given, however, the existing demographic situation, the absence in the structure of kolkhoz farmers and the rural population of existing reserves for increasing the proportion of persons for whom the main source of income is remuneration for labor does not mean that this ends all opportunities for raising incomes within the framework of the structure indicated. Such opportunities can be sought along another avenue, namely in increasing employment in social production among the able-bodied population: in creating conditions for year-round employment and making full use of the annual amount of working time for workers. Despite the scientific and technical and organizational changes that are largely facilitating the solution of this problem, in the agrarian sector the seasonal nature of labor still predominates. Here, in kolkhozes, employment of workers in social production is lower than in sovkhozes. In 1977, for example, the able-bodied kolkhoz farmer was engaged in social production by a factor of 1.2 less than the sovkhoz worker.¹⁷ This has an adverse effect on income formation.

The degree to which this factor influences drops in income can be judged from the following figures. According to calculations done by F. S. Martinkevich, in the Belorussian SSR, even given an unchanged level of development in the farms, full utilization of the annual amount of working time for kolkhoz farmers (based on 240 working days) would make it possible to increase the annual income of a single able-bodied person by 20% and the gross income of a kolkhoz family by 8%.¹⁸

The seasonal nature of agricultural labor as a phenomenon associated with the natural factors of production is virtually insurmountable in conditions of partial mechanization. Accordingly, only quantitative and qualitative improvement of the material and technical base for agriculture will lead to the reduction or elimination of the seasonal nature of agrarian labor. The main trends creating conditions for year-round employment of agricultural workers are industrialization, specialization and concentration of production, that is, the entire range of scientific and technical and organizational measures now being implemented. Other, more partial avenues for improving employment rates are not excluded either. These may include the following: holding two jobs to expand the range of use for the labor of a single worker; reducing the time spent on private auxiliary farming as the result of broad dissemination of the experience of those farms on which part of the work on carrying on private farming is done by the efforts of the kolkhoz or sovkhoz; fuller involvement of women in social production by expanding the network of preschool institutions for children; and the development at kolkhozes and sovkhozes of subsidiary industrial production and small industries for processing agricultural produce and producing construction materials and consumer goods from local raw materials.

Of course, the avenues indicated do not exhaust all the opportunities for increasing the labor activity of the rural population; in our view, such opportunities are shown quite fully in the literature dealing directly with this problem. A consideration of these avenues, however, from the

viewpoint of the questions touched upon in this article makes it possible to look at them in a new way, that is, as one of the real sources for reducing differentiation in incomes.

FOOTNOTES

1. See EKONOMICHESKAYA SISTEMA SSSR. POLITICHESKOYE SAMOOBRAZOVANIYE No 11, 1978, p 88.
2. "Materialy XXIV syezda KPSS" [Materials of the 24th CPSU Congress] Moscow 1971, p 35.
3. "Materialy XXV syezda KPSS" [Materials of the 25th CPSU Congress] Moscow 1976, pp 163, 216.
4. "Narodnoye khozyaystvo v 1978 g." [The USSR National Economy 1978] Moscow 1979, pp 391-392.
5. "Itogi Vsesoyuznoy perepisi naseleniya 1970 g" [Results of the 1970 Census] Vol. 5, pp 154-155.
6. V.I. Staroverov, "Sotsialnaya struktura selskogo naseleniya SSR na etape razvitogo sotsializma" [Social Structure of the Rural Population in the USSR at the Stage of Developed Socialism] Moscow 1978, p 128.
7. "Materialy XXIV syezda KPSS" [Materials of the 24th CPSU Congress] p 35; "Materialy XXV syezda KPSS" [Materials of the 25th CPSU Congress] pp 163, 216.
8. In statistics this includes children, the elderly, and other persons engaged only in housekeeping activities and the upbringing of children and not having their own income.
9. Calculated from "Itogi Vsesoyuznoy Perepisi Naseleniya 1970" [Results of the 1970 Census] Vol. 5, pp 146-147, 162.
10. See G. S. Sarkisyan, "Uroven, tempy i propotsii rosta realnykh dokhodov pri sotsializma" [Level, Rates and Proportions of Real Incomes under Socialism] Moscow, 1972, p 146.
11. See N.Ye. Rabkina and N.M. Rimashevskaya, "Osnovy differentsiatsii zarabotnoy platy i dokhodov naseleniya" [Bases for Differentiation in Payments and Wages of the Population] Moscow, 1972, p 48.
12. Whereas in 1970 urban families with three or more children made up 9.9% of all families, the figure for families in rural areas was 26.7%. Among urban dwellers, the proportion of children aged under nine years was 15.9% while for rural dwellers it was 22.1% (calculated from "Itogi Vsesoyuznoy perepisi 1970 g" [Results of the 1970 Census] Vol 2, p 15 and Vol 7, p 380).

13. See F.S. Martinkevich, "Sotsialno-ekonomicheskiye problemy selskogo khozyaystva Belorussii na etape razvitogo sotsializma" [Socioeconomic Problems in Agriculture in Belorussia at the Stage of Developed Socialism] Minsk, 1975, p 309.
14. See Ye.I. Ruzavina "Zanyatnost v usloviyakh intensifikatsii proizvodstva" [The Level of Employment under Conditions of the Intensification of Production] Moscow 1975, p 56.
15. Calculated from "Itogi Vsesoyuznoy perepisi naseleniya 1970 g" [Results of the 1970 Census] Vol 2, p 15.
16. See V.I. Staroverov, "Sotsialnaya struktura selskogo naseleniya SSSR na etape razvitogo sotsializma" [Social Structure of the Rural Population in the USSR at the Stage of Developed Socialism] p 128; G.A. Slesarev, "Demograficheskiye protsessy i sotsialnaya struktura sotsialisticheskogo obshchestva" [Demographic Processes and the Social Structure of Socialist Society] Moscow, 1978, p 66.
17. See G. Sarkisyan, "CPSU Agrarian Policy and the Rise in the Well-Being of the People," SOTSIALISTICHESKIY TRUD, No 10, 1978, p 15.
18. See F.S. Martinkevich "Sotsialno-ekonomicheskiye problemy selskogo khozyaystva Belorussii na etape razvitogo sotsializma" [Socioeconomic Problems in Agriculture in Belorussia at the Stage of Developed Socialism] p 391.

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LABOR

EFFORTS TO INCREASE LABOR PRODUCTIVITY IN LITHUANIA

Vil'nyus SOVETSKAYA LITVA in Russian 22 Mar 80 p 1

[Economic review: "Increasing Labor Productivity"]

[Text] Due to the tireless labor of Lithuanian production collectives in January and February industry fulfilled the basic assignments for increasing the production and sales of products to be marketed. The rates for increasing the volume of production within this time period were significantly higher than last year at this time. The plan for product output was fulfilled by all ministries and departments. The Ministry of the Furniture and Wood Working achieved a 7.7 percent growth in amount of product; the Ministry of the Light Industry - 6.4 percent; the Ministry of the Food Industry - 5.3 percent; and the Ministry of Construction - 10.7 percent. At the Klaypeda "Sirius" Dry Element Plant total production output increased by more than 52 percent; at the Shyaulyay Machine Tool Building Plant - by 75 percent; at the Kapsukakiy Vending Machine Plant by almost 38 percent; and at the "El'fa" production association by 21 percent.

Labor productivity increased by 6.8 percent, resulting in an 87 percent growth in gross output.

In January and February the amount of product sales increased significantly. As compared with this same time period last year, it increased by 101, 300, 000 rubles, or 9 percent. More than 34 million rubles worth of manufactured articles were sold in excess of the plan.

The achievement of these positive results was made possible by the consistent and purposeful work of the Party organizations and the collectives and enterprises, which was aimed at raising the efficiency of public production and a suitable greeting to the 110th anniversary of Lenin's birth. Good results were achieved by the collectives of industrial enterprises in Vil'nyus, Klaypeda, Kaunas. They are now striving to ensure high rates of growth in quantitative and qualitative indicators by making maximum use of production capacities.

An important aspect of the work in raising the efficiency of production is the concentration of efforts on crucial problems and trends, such as the maximum loading and recovery of planned indicators of newly assimilated capacities, the comprehensive modernization of existing production facilities, the extensive application of the achievements of science and technology, the constant improving of the organization of production and the system of management, and the rational use of labor and material resources. Within the past year alone proposals for improving production methods and inventions resulted in savings of almost 70 million rubles. As a result of a thrifty attitude toward the national welfare approximately 30 million kilowatt-hours of electric power were saved, 69,000 gigacalories of thermal energy and more than 12,000 metric tons of boiler-furnace fuel was conserved. The collectives of the enterprises are continuing their work in this direction.

In analyzing the results of work for the past two months and noting what has been achieved, we must, however, point out the negative side of the picture in the work of some enterprises. Not managing to fulfill the plan for the past two months in selling products to be marketed were the Ministry of Motor Transport and Highways, the Vil'nyus Electric Welding Equipment Plant, the Klaypeda Cellulose-Cardboard Plant, and the Plungekiy Artificial Leather Plant.

For January and February 1980 the following organizations did not fulfill the established production plan: the "Prekalas" Special Machine Tool Plant, the "Litbumprom" production association, the Kapsukskiy Canned Milk Combine and others. In spite of the fact that the plan for product output of the majority of manufactured articles was fulfilled, in some cases fewer were produced than had been planned. For example, the Kaunas Rubber Articles Plant "Inkaras" was short by approximately 40,000 pairs of rubber footwear; the Shyanlyay Bicycle and Motorcycle Plant "Vayras" was short by more than 2,000 bicycles; the "Kaytra" Experimental Sanitary Engineering Plant was short by 1,800 enamel basins, etc.

Six percent of the enterprises and associations did not fulfill the plan for increasing labor productivity in January and February. As a result they were short by 3.2 million rubles worth of product. Not fulfilling during this time period the established plan for growth in labor productivity were the Ministry of Rural Construction and the Kedayskiy Chemical Plant; the monthly plan was not fulfilled by the "Azot" Production Association, the Alitusskiy Refrigerator Plant and many other enterprises.

At the present stage the task to speed up the growth rates of labor productivity has taken on special importance. The crux of the matter is that the growth in labor productivity must ensure a 34 percent growth in industrial product and 100 percent of the growth in agricultural product. Meanwhile for industry on the whole the amount of product manufactured due to a growth in labor productivity was less than planned.

The rates called for in the five-year plan to raise labor productivity, as we all know, are supported by a full gamut of measures both at the national level and within the sectors, associations and enterprises.

The mechanization of labor occupies an important place among the measures which provide for high growth rates of labor productivity. We still have a large amount of manual labor, chiefly in secondary jobs. A large number of workers are still engaged in transporting and moving cargoes and in loading and unloading operations. If one considers that the productivity of such manual labor is 20 times lower than in similar automated jobs, it becomes quite clear that it is extremely important that transport operations at industrial enterprises be mechanized in the future. There is also a large amount of manual labor in such key sectors of the national economy as construction and agriculture.

In connection with this it is necessary to persistently seek out and put into action the reserves for the production of the means of mechanization. It is no secret, however, that the use of equipment at the enterprises of the machine building sector, which manufacture the means of mechanization, leaves much to be desired. In the machine building sector the machine shift coefficient has not increased in recent years; and on the average equipment is used less than 1.5 shifts per day. There are a large number of standdowns lasting an entire shift or during a shift; the partial reduction of standdowns would make it possible to significantly increase the output of product vital to the national economy, including the means of mechanization and automation of production.

The attention of the Party, trade union, Komsomol organizations, and all labor collectives must be concentrated on fulfilling the planned measures for raising labor productivity to the full extent. This is the requirement of the day.

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EDUCATION

ARMENIAN SCIENTISTS ON PROBLEMS IN VUZ RESEARCH, DEVELOPMENT

Yerevan PROMYSHLENNOST' ARMENII in Russian No 1, 1980 pp 41-43

[Article by Candidate of Technical Sciences K. A. Ter-Mkrtchyan, chief of the department of scientific research and the special planning and design office of the Yerevan Polytechnical Institute imeni K. Marx, and Candidate of Technical Sciences S. A. Akopyan, scientific secretary at the institute: "Organizing Scientific Research in the Polytechnical Institute"]

[Text] A role of considerable importance is given to the higher school in resolving the tasks of scientific and technical progress. The party and government pay enormous attention to the higher school, not only as regards training highly skilled specialists for various branches of our country's national economy, but also as regards effectively using the scientific potential of the higher school, with its large army of specialists in the persons of professors and instructors.

One of the basic features of VUZ work is the establishment of a precise interconnection between the academic process and scientific research.

We should like to touch on one of the most important problems of the higher school, that of the connection between the academic process, scientific developments and production, that of introducing VUZ developments into production.

The connection between VUZ science and production can be:

- a) along the lines of working on state-budget topics, with the outcome basically in the form of concrete theoretical and often practical recommendations;
- b) along the lines of direct cost-accounting agreements to carry out scientific research and experimental design, the outcome being basically in the form of a report on the theoretical and experimental portion of the topic and often in the form of presenting the client with a ready technology, technical plan, designer's work-up of the problem and, finally, a mock-up model of the item, equipment, device, and so on;
- c) along the lines of cooperation agreements which basically anticipate a mutual exchange of information, participation in carrying out research developed by the VUZ, transmitting data for use by enterprises, and so on.

Each of the indicated VUZ-to-production ties must supplement the others and be done in stages at different periods of time, but they are extremely necessary and mutually advantageous to both the VUZ and the enterprise under any circumstances. However, these forms do not anticipate actualization of VUZ research and development results on a broad scale encompassing the branch or related branches of industry, much less on a nationwide scale.

Unfortunately, only an insignificant portion of the scientific and practical developments carried out in the higher school complete the cycle of "research - technical development of the problem - preparation and release of technical documentation for the project - experimental introduction - adjustment of technical documentation and the project - large-scale introduction - technical-economic impact."

There can also be other combinations, but the task is the same -- an outlet to production for VUZ science, with the creation of a whole series of conditions in the form of economic impact, increased labor productivity, improved working conditions, improved designs and greater technological effectiveness, labor protection, and others. However, much hinders the practical implementation of all this, and foremost the lack of VUZ production-experimental workshops, pilot plants, experimental bases, and so forth.

Yerevan Polytechnical Institute imeni K. Marx has long been in difficult straits in this regard. The lack of an experimental base has sharply lowered the effectiveness with which research results leave it.

The YerPI, celebrating its 50th anniversary this year is the largest higher academic institution in the republic in terms of training engineering personnel. The institute has 24 departments training 21,415 students (including institute branches in Leninakan, Kirovakan and Dilizhan) in 62 specialties. The institute has 103 chairs, including 38 specialized ones.

Given the tempestuous development of new branches of industry, it is naturally hard for the institute to make radical changes in the shapes of the departments and chairs, as this requires a certain amount of time, considerable material expenditures, expansion of study facilities, equipping laboratory centers, and so on. This must also be preceded by training and retraining the professor-instructor staff, which also requires time, funds and, once again, the material-technical and scientific bases.

The VUZ is thus a complex organism demanding a skillful approach to all innovations in any of its cells. We are obligated to concern ourselves with prospects for its development, with using newer and newer methods in the academic process and effective methods of organizing research, with establishing ties with production, and so forth.

Yerevan Polytechnical Institute imeni K. Marx contributes to various branches of the national economy each year. Suffice it to note that scientific subdivisions of the YerPI -- chairs, special-problem laboratories, the scientific research department and the special planning and design office -- are

currently doing about three million rubles worth of work each year for more than 100 enterprises and organizations of our republic and the country.

Several scientific directions actually linked to the training of specialized engineering-technical personnel have already become traditional for the institute. Here are the basic ones:

- research on developing high-precision geodetic measurement devices, installations and systems;
- developing new principles of electron-beam data display installations for computer data coming into automated control and design systems, as well as developing automated design system equipment and setting up operator interaction with the computer;
- research on developing an electric truck for intraurban shipments;
- developing highly productive methods of working materials with high quality, methods based on determining the rheologic state of the cutting zone as a function of the operating field, properties of the material being worked and tool geometry;
- researching rock at high pressures and temperatures, compiling a tectonic map of Armenia;
- improving housing enclosure components for use in areas with high seismicity and continental climate;
- developing and creating an automated higher-school data control system;
- research on forecasting subsurface water quality and behavior with a view towards using it effectively to irrigate Ararat Valley and designing economical reclamation systems.

The institute has begun developing (on a co-executor basis) the pressing topic of creating manipulation robots to search out, collect, process and transmit useful information in difficult-access terrain.

Another scientific direction is the development of a high-speed magnetic-suspension ground transport system.

In the area of increasing the effectiveness of VUZ science, special importance has been acquired by organizing it correctly, the more so in a multi-specialty VUZ such as the Yerevan Polytechnical Institute.

The task is to develop comprehensive research, that is, to unify the efforts of specialists in various chairs to comprehensively study an urgent problem. Thus, in developing manipulation robots, problems of planning and designing the mechanisms are being solved by the chair of mechanisms and machines theory, problems of creating the programmed control system -- by the chairs of automated control systems, computer equipment, automation and telemechanics, and applied mathematics; the mock-ups are being manufactured by the experimental pilot plant.

Thus, the broad profile of institute specialties facilitates comprehensive research of important national economic significance.

A majority of the institute's scientific achievements have been recognized as inventions. Thus, during 1976-1978 alone, 34 certificates of invention and 56 positive rulings were obtained. Several of the devices and installations developed at the institute have been demonstrated at the USSR Exhibit of National Economic Achievements and awarded medals and prizes.

However, the lack of an experimental base has retarded extensive introduction of institute developments into the national economy and has reduced the effectiveness of its scientific research. In 1977, organization of an independently budgeted experimental pilot plant (OEZ) attached to the YerPI special planning and design office was outlined.

The OEZ is called on to perform work associated with the development, design, preparation, release of technical documentation and manufacturing of mock-ups and prototypes of items based on research done in the chairs, special-topic and branch laboratories and economic-agreement groups of the scientific research department and the special planning and design office, as well as to produce for the national economy (in small lots or series) devices, equipment and items based on developments of their own or produced in institute subdivisions.

The YerPI OEZ has been in operation since 1 January 1978. In spite of difficulties in setting it up, the pilot plant has become an increasingly significant support in actualizing concepts. Thus, whereas prior to organization of the OEZ the institute was able to present its developments only as isolated mock-ups, even as early as 1978 the OEZ had manufactured nine sets of hydrostatic levelers (which were shipped to clients in Rudnyy, Dnepropetrovsk, Moscow, Vil'nyus, Groznyy, Ufa, Kiev and Novopolotsk), as well as a number of other installations and items.

Thus, the availability of an experimental production facility at a VUZ carrying out significant amounts of scientific research and experimental design work is a necessary condition on which the effectiveness of VUZ science depends in considerable measure.

Another factor of considerable importance is technical-economic research to substantiate the appropriateness of introducing particular developments into production. Such research must precede each particular scientific development; upon completion of scientific research, the proposed savings from introducing the development must be calculated.

The institute has set up a technical-economic substantiation and introduction group; technical-economic research and substantiation has already been done for the largest projects underway.

Thus, the YerPI is implementing a complex of measures aimed at improving scientific research quality and effectiveness at the institute, at strengthening ties between science and production, at participation in resolving the tasks of further developing the national economy.

DEMOGRAPHY

BRIEFS

NAKHODKA POPULATION--During the 30 years since Nakhodka became a city of kray subordination its population has increased almost five times and currently exceeds 130,000. [Vladivostok Domestic Service in Russian 0930 GMT 16 May 80]

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